

## **REMARKS/ARGUMENTS**

### **Status of the Claims**

In the Office Action mailed June 28, 2005, claims 31-53 are pending. Claims 54-60 have been withdrawn. Claims 31-53 were rejected. This rejection is respectfully traversed. Claim 31 has been amended. Applicants have thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The Examiner is thanked for his interview on August 16, 2005.

The following remarks are believed to be fully responsive to the Office Action. All the pending claims at issue are believed to be patentable over the cited references. Reconsideration and withdrawal of the outstanding rejections are respectfully requested in view of the following remarks.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for all the reasons discussed herein); (b) do not raise any new issues requiring further search and /or consideration; and (c) place the application in better form for appeal (if necessary). No new issues are raised as the amendments merely clarify and/or correct the claims. Accordingly, entry is proper under 37 CFR §1.116.

### **Claim Rejections – 35. U.S.C. §102(b)**

The Examiner rejected claims 31-53 under 35. U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,968,292 to Bergsma. Without conceding the propriety of the rejections, claim 31 has been amended. Support for this amendment is to be found at least in paragraph 8 and throughout the specification and in the Figures. Accordingly, no new matter has been added.

For anticipation under 35 U.S.C. §102 the reference must teach every aspect of the claimed invention either explicitly or implicitly. Any feature not directly taught must be inherently present (M.P.E.P. 706.02).

Bergsma does not teach or suggest, at least, *inter alia*, “A rheocasting method for semi-solid metal casting, comprising: providing a first alloy, . . . providing a second alloy . . . liquefying at least one of the first alloy and the second alloy by heating to a first temperature, . . . generating a semi-solid metal by cooling the combination,” as recited in claim 31. Rather, Bergsma is directed to thixocasting. Bergsma discloses providing a molten body of the aluminum alloy which is solidified by cooling at a rate of 5 to 100° C/sec to generate a solid with a fine dendritic microstructure. (Col. 4, line 58-Col. 5, line 22). Thereafter, the solid is superheated to transform this dendritic microstructure to a globular microstructure. (*Id.*)

Bergsma further discloses that superheating must occur, “as quickly as possible,” to liquefy the lower melting eutectic while retaining the newly created globular microstructure. (Col. 10, lines 64-67 and col. 13 lines 55-57). Thus, Bergsma discloses generating SSM by quickly superheating the dendritic solid alloy.

Moreover, Bergsma states, “it is believed that superheating the alloy body is necessary because a new phase has to be created where silicon particles are dissolved to promote thermal transformation to globular form or effect semi-solid thermal transformation.” (Col. 11, lines 60-65). In addition, Bergsma states, “[i]t is readily seen from these calculations that a certain amount of superheat must be supplied for the melting and transformation to occur in a very short time.” (Col. 13, lines 14-16). Thus, Bergsma teaches away from, “generating a semi-solid metal by cooling,” as recited in claim 31.

Claims 32-53 depend from independent claim 31. Because claim 31 is believed to be in condition for allowance, claims 32-53 are also believed to be in condition for allowance, at least by reason of their dependency. Accordingly, withdrawal of the rejection of claims 31-53 is respectfully requested.


**CONCLUSION**

In view of the foregoing remarks, Applicants respectfully submit that this application is in condition for allowance. Should the Examiner believe that anything further is necessary to place the application in even better condition for allowance, the Examiner is invited to contact the undersigned attorney at 202-861-1746 in an effort to resolve any matter still outstanding before issuing another action.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036 with reference to our Docket No. 87324.1740.

Respectfully submitted,

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